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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,701	09/30/2005	Yukimasa Nagai	2611-0245PUS1	8259
2292 7590 09/12/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER MITCHELL, NATHAN A	
			ART UNIT 2609	PAPER NUMBER
			NOTIFICATION DATE 09/12/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/551,701

Applicant(s)

NAGAI ET AL.

Examiner

Nathan Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 46-54 and 65-72 is/are allowed.
- 6) ☒ Claim(s) 37,39,42-44,55,57 and 60-62 is/are rejected.
- 7) ☒ Claim(s) 38,40,41,45,56,58,59 and 63 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 9/30/2005.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 9/30/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
4. The disclosure is objected to because it contains an embedded hyperlink (page 1 line 20) and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 37, 42, 44, 55, 60 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,194,237 to Sugar et al. in view of JPO Publication No. 2000-299704 A to Tomoki et al.

For claim 37, Sugar et al. discloses:

A base station (fig. 3 150) for a wireless LAN system (if it's using 802.11, it's a wireless LAN system) realizing band-widening (MIMO is band widening) using a plurality of communication channels (fig. 1 paths between antennas), the base station comprising:

a plurality of physical layers (fig. 3 152, 154, 110) corresponding to the plurality of communication channels (fig. 1 represented through h transforms), and each that transmits and

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receives a radio signal conforming to an IEEE 802.11 standard (column 3 line 20) using a corresponding communication channel (one of antennas in fig. 1); and

a media access control (column 3 lines 16-19 contained in 100), when transmitting, that simultaneously transmits entire data frames conforming to the IEEE 802.11 standard (column 3 lines 16-20) from a head of the data frame (inherent that 802.11 is identified in header of 802.11 frames).

For **claim 37**, Sugar et al. discloses all the subject material of the claimed invention with the exception of the base station, dividing the frames into pieces in accordance with a transmission rate of each physical layers, allocating divided data frames such that the burst times of the physical layers are substantially equal and when receiving combining data frames received through operations opposite to those performed when transmitting.

In a similar system, Tomoki et al. disclose dividing an input stream of data into a predetermined unit (translation page 1 lines 17-18) and is able to reconstruct the data (fig. 10). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teaching of Tomoki et al. with that of Sugar et al. The system of Sugar et al. already is able to realign simultaneously transmitted frames. One skilled in the art could easily modify it to divide frames according to the method of Tomoki et al. The motivation for doing this is to increase the transmission rate (translation page 1 lines 15-16).

Sugar et al. is silent on the nature of the physicals contained in its system. Official notice is taken that it is well known in the art to use antennas/physical layers that are identical. It would have been obvious to one of ordinary skill at the time of invention to utilize antennas that are the same. The motivation for doing this is simplicity of implementation.

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By dividing data into a fixed units and using physical layers that are identical, it is inherent that the burst times are going to be substantially equal. Furthermore, when physical layers are identical and data is divided into fixed units, the division can be considered to be done in accordance with the transmission rate of each physical layer.

For **claim 42**, Sugar et al. further disclose the simultaneous transmission of equal frames using the plurality of communication channels (column 3 lines 16-20)

For **claim 44**, it is inherent that that 802.11 channels are selecting according to frequency and thus claim 44 is rejected for the same reason as claim 37.

Claim 55 is rejected for the same reason as claim 37 as a base station can be considered to be a radio terminal.

Claim 60 is rejected for the same reason as claim 42.

Claim 62 is rejected for the same reason as claim 44.

9. Claims 39 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar et al. in view of Tomoki et al. as applied to claims 37 and 55 above, and further in view of U.S. Patent No. 7,206,586 B2 to Kim et al.

For **claim 39**, Sugar et al. as modified by Tomoki et al. teaches a protocol unit (15) conforming to an IEEE 802.11 standard, but is silent on the use of a carrier sense multiple access/collision avoidance protocol.

In a similar system, Kim et al. teach the use of a CSMA/CA protocol for the same purpose (column 4 lines 18-22). It would have been obvious to one of ordinary skill in the art at the time of invention to utilize the CSMA/CA protocol. As it is a well known protocol to use in IEEE 802.11 due to the fact that the frequency bands used by 802.11 are unlicensed, one skilled

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in the art could easily integrate it into the base station of claim 37. The motivation for doing so is to avoid interference.

Claim 57 is rejected for the same reason as claim 39.

10. Claims 43 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar et al. in view of Tomoki et al. as applied to claims 37 and 55 above, and further in view of U.S. Patent No. 7,200,178 to Shoemake et al.

For **claim 43**, Sugar et al. as modified by Tomoki et al. discloses all the subject matter of the claimed invention with the exception of the use of polling control. In a similar field of endeavor, Shoemake et al. discloses controlling wireless stations through polling (column 7 lines 5-7). It would have been obvious to one of ordinary skill at the time of invention to combine this teaching with the base station of claim 37. It could easily be integrated into the base station through software. The motivation for doing so it to resolve contention between stations for control of channels.

Claim 61 is rejected for the same reason as claim 43.

Allowable Subject Matter

11. Claims 38, 40, 41, 45, 56, 58, 59 and 63 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. For claims 38 and 56, the prior art fails to teach a determining unit in conjunction with a base station employing multiple physical layers. For claims 40 and 58, the prior art fails to teach the combination wherein a dividing transceiver passes frames with smaller size. For claims 41 and 59, the prior art fails to provide a motivation

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to combine the feature with the base station of claim 37. For claims 45 and 63, the prior art fails to provide a motivation to combine all elements in the frame.

12. Claims 46-54 and 64-72 are allowed. For claims 46-54 and 64-72, the prior art fails to teach a base station wherein partial data frames are divided.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Document Number Country Code- Number-Kind Code	Date MM- YYYY	Name	Classification
US-5,164,938 A	11-1992	Jurkevich et al.	370/231
US-5,692,130 A	11-1997	Shobu et al.	709/229
US-6,094,439 A	07-2000	Krishna et al.	370/445
US-2004/0013211 A1	01-2004	Lindskog et al.	375/347
US-2004/0008796 A1	01-2004	Andrews, Michael R.	375/267
US-2004/0156339 A1	08-2004	Urquhart et al.	370/334
US-2004/0208145 A1	10-2004	Sim et al.	370/335
US-2004/0223475 A1	11-2004	Hong, Alexander T.P.	370/338
US-2007/0155393 A1	07-2007	Hirai et al.	455/450

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Mitchell whose telephone number is (571)270-3117. The examiner can normally be reached on Monday through Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571)272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathan Mitchell

Nathan Mitchell/nam

Tom

DANG T. TON
SUPERVISORY PATENT EXAMINER